

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Dynamic modules –
Part 1: Performance standards – General conditions**

**Modules dynamiques –
Partie 1: Normes de performance – Conditions générales**

[IEC 62343-1:2019](#)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

DYNAMIC MODULES –

Part 1: Performance standards – General conditions

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 62343-1 edition 2.1 contains the second edition (2019-02) [documents 86C/1518/CDV and 86C/1560/RVC] and its amendment 1 (2023-12) [documents 86C/1867/CDV and 86C/1887/RVC].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 62343-1 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

This second edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) errors of Table 1 has been corrected;
- b) the contents of Table A.1 has been revised.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62343 series, published under the general title *Dynamic modules*, can be found on the IEC website.

The committee has decided that the contents of this document and its amendment will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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INTRODUCTION

Performance standards define standard electrical and optical performance under a set of prescribed conditions and contain a series or a set of tests and measurements with clearly defined conditions, severities and pass/fail criteria. The tests are intended to be run on initial design verification to prove the product's ability to satisfy the requirements of a specific application, market sector or user group.

Performance standards do not specify the requirements on reliability, which are defined in IEC 62343-2.

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DYNAMIC MODULES –

Part 1: Performance standards – General conditions

1 Scope

This document provides general conditions for the standard performance of optical dynamic modules. All performance standards of dynamic modules are based on the general conditions defined in this document. Additional conditions are included in individual performance standards.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62343, *Dynamic modules – General and guidance*

IEC TS 62538, *Categorization of optical devices*

ITU-T Recommendation G.Supplement 39 to ITU-T G-series Recommendations, *Optical system design and engineering considerations*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62343 and IEC TS 62538 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Requirements of operating conditions

Dynamic modules are generally installed in optical transmission equipment located in central offices that have a temperature and humidity controlled environment. All dynamic modules shall satisfy their performance requirements under the general conditions specified in this document.

Table 1 specifies the minimum requirements of operating conditions for dynamic modules and devices for commercial use. All performance parameters shall satisfy the specifications defined in relevant performance standards under the operating conditions in Table 1, unless otherwise stated.

Recommendations for other conditions on product specifications are shown in Annex A.

Table 1 – Operating conditions

Items	Conditions
Operating temperature range	-5 °C to 70 °C, case temperature ^a
Operating relative humidity range	Under consideration 5 % to 85 %
Operating vibration ^b	Frequency: 5 Hz to 100 Hz Acceleration: 9,8 m/s ² (1,0 g) or amplitude of 3 mm maximum. Sweep: 0,1 oct/min 3 axis Optional test condition: Frequency: 100 Hz to 200 Hz Acceleration: 19,6 m/s ² (2,0 g) Sweep: 8 oct/min 3 axis
Operating shock	Optional requirement
Maximum input power	Depending on individual performance standard
^a A position at which to measure the temperature on the surface of a module shall be defined. When a dynamic module does not emit heat, it is not necessary to define a position may not need to be defined .	
^b This operating vibration condition is based on a market survey result given in IEC TR 62343-6-5.	

5 Requirements of operating wavelength range (spectral band)

All individual performance standards shall define the operating wavelength range in accordance with the spectral bands defined in ITU-T Recommendation G.Supplement 39, as given in Table 2.

Table 2 – Spectral bands

Band	Descriptor	Range nm
O-band	Original	1 260 to 1 360
E-band	Extended	1 360 to 1 460
S-band	Short wavelength	1 460 to 1 530
C-band	Conventional	1 530 to 1 565
L-band	Long wavelength	1 565 to 1 625
U-band	Ultra-long wavelength	1 625 to 1 675

Annex A (informative)

Recommendations for other conditions on product specifications

A.1 Storage environmental conditions

Storage environmental conditions are defined in the relevant product specifications. Table A.1 shows the typical storage environmental conditions for dynamic modules and devices for commercial use. Non-operating test conditions defined in performance specifications are chosen taking into account these storage environmental conditions.

Table A.1 – Typical storage environmental conditions

Items	Conditions
Storage temperature range	–40 °C to 70 °C, ambient
Storage relative humidity range	5 % to 85 % RH Absolute humidity is within 24 g per 1 kg dry air
Non-operating shock (for modules)	2 000 m/s ² , 1,33 ms, half sine for 0,125 kg < <i>m</i> (mass) ≤ 0,225 kg. 500 m/s ² , 5 ms, half sine for 0,225 kg < <i>m</i> ≤ 1 kg.
Non-operating vibration	Under consideration
Non-operating drop (for modules)	100 mm height for 1 kg < <i>m</i> ≤ 10 kg 75 mm height for 10 kg < <i>m</i> ≤ 25 kg
Packed drop	1 m height
Packed vibration	5 Hz to 20 Hz for frequency; 0,1 m/s ² /Hz (2 m/s ² at 20 Hz) 20 Hz to 200 Hz, –3 dB/oct

A.2 Absolute maximum ratings

Absolute maximum ratings are defined in relevant product specifications. Table A.2 shows the recommended items of absolute maximum ratings for dynamic modules and devices for commercial use.

Table A.2 – Recommended absolute maximum rating items

Items
Applied voltage
Applied current
Applied electrical power
Input optical power